

Digital tools as a means to foster citizen involvement in urban planning

Introduction – What is a smart city?

A common feature of smart cities is the massive use of ICT to become efficient and sustainable (Dameri & Rosenthal-Sabroux 2014, Kitchin 2014).

... but focuses mainly on management (flows, resources, ...).



Introduction – Citizens' role in smart cities

- There is a **lack of social considerations** in smart city projects
- Importance to shift from a **technology-oriented vision** to **people-based vision** (Zubizarreta et al. 2016, Neirotti et al. 2014).



Literature review – Participatory planning

Participation in planning is not new (Lane 2005, Gordon et al. 2011, Seltzer & Mahoudi 2012, Kleinhans et al. 2015) :

1954 : Urban Renewal Program, US

1969 : Arnstein's Ladder

"The idea of citizen participation is a little like eating spinach: no one is against it in principle because it is good for you."

(Arnstein 1969, p.216)

Conventional citizen participation methods (Rowe & Frewer, 2000, Shipley & Utz, 2012 in Kleinhans et al. 2015) :

- [illegible]

Literature review – Participation digital tools

Developpement of technology provided new tools:

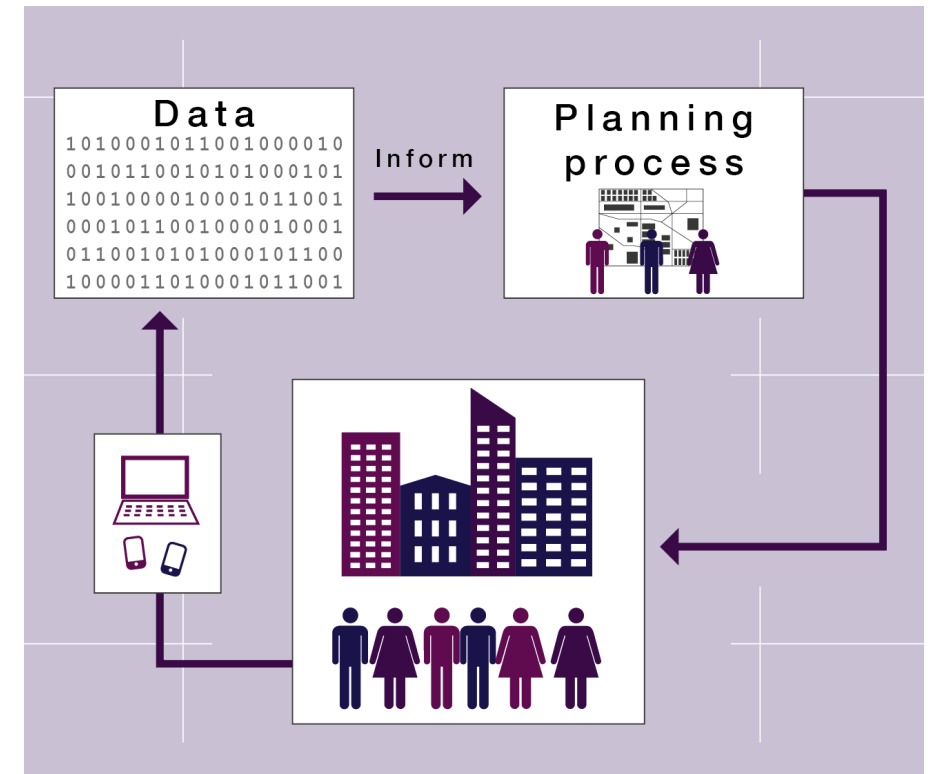
- **PPGIS** (Geertman 2002, Hanzl 2007, Gordon et al. 2011, Kahila-Tani et al. 2016)
- **Collaborative software** (Hanzl 2007)
- **Visualization tools: CAD, VR** (Hanzl 2007, Evans-Cowley & Hollander 2010 Gordon et al. 2011, Khan et al. 2014)
- **Games** (Hanzl 2007, Gordon & Schirra 2011, Gordon & Baldwin-Philippi 2014)
- **Social media** (Evans-Cowley & Hollander 2010 , Foth et al. 2011, Kleinhans et al. 2015)
- **Crowdsourcing** (Brabham 2009, Seltzer & Mahoudi 2012, Saujot & De Feraudy 2016)
- **Mobile apps** (Ertiö 2015)

Literature review – some findings

Outlines of the talk

Research questions

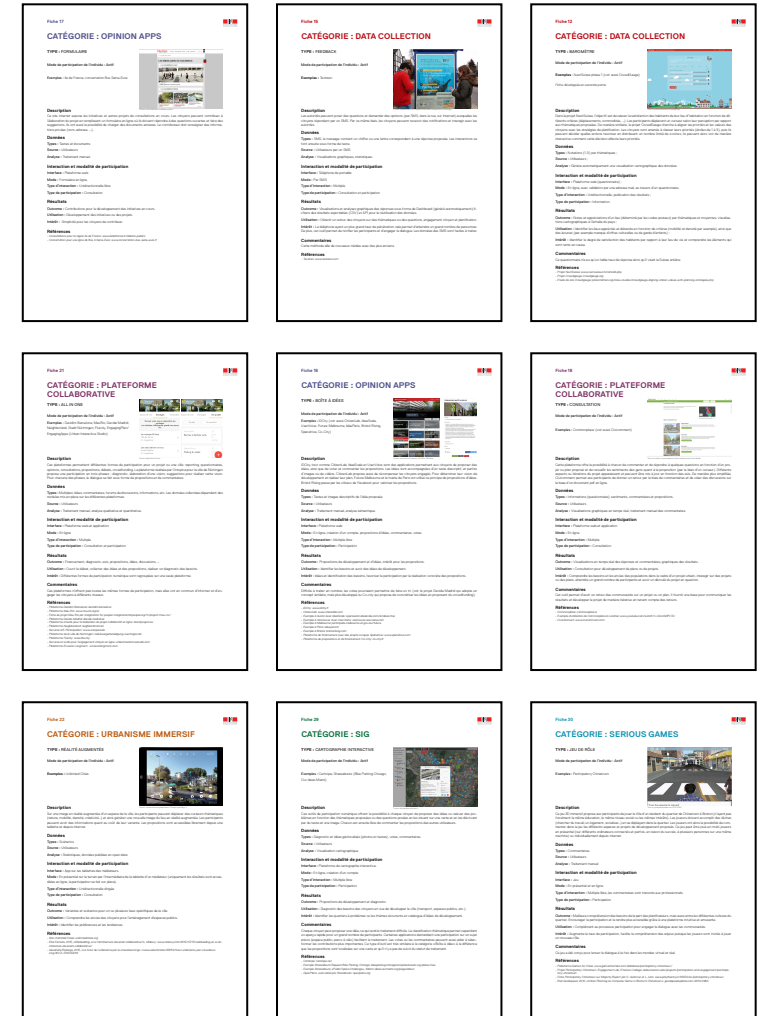
- How do digital tools and data change the role the citizen is playing in urban planning process and decision making?
- What are the opportunities and limits of including citizens in the planning process through digital tools?



Method

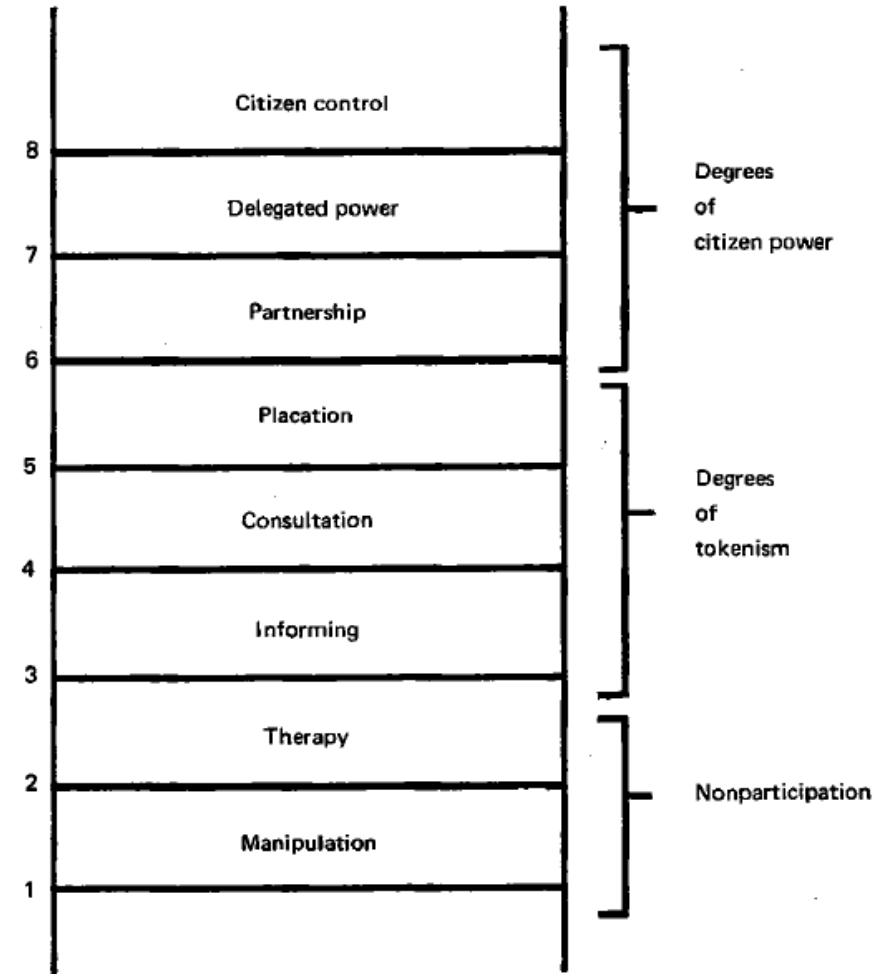
Catalogue of practices in digital participation planning or thematically related to urban planning (governance, management):

- Data collected
- Interactions
- Degree of involvement
- Outcome and / or possible outcome
- Use in urban planning
- Actors



Classification ladder

Arnstein Ladder, 1969



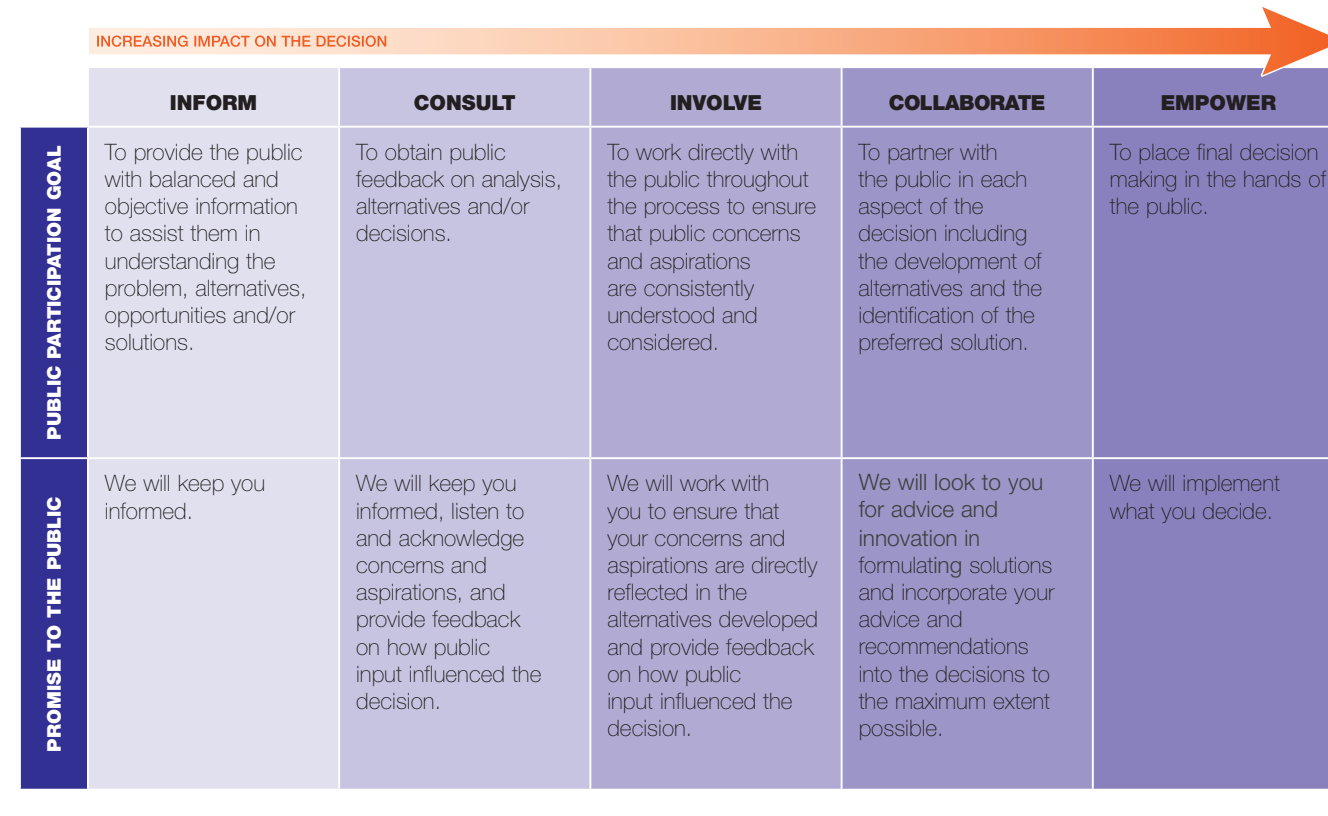
S. R. Arnstein, "A Ladder of citizen participation," *Journal of the American Institute of Planners*, vol. 35, no. 4, pp. 216–224, Jul. 1969.

Classification

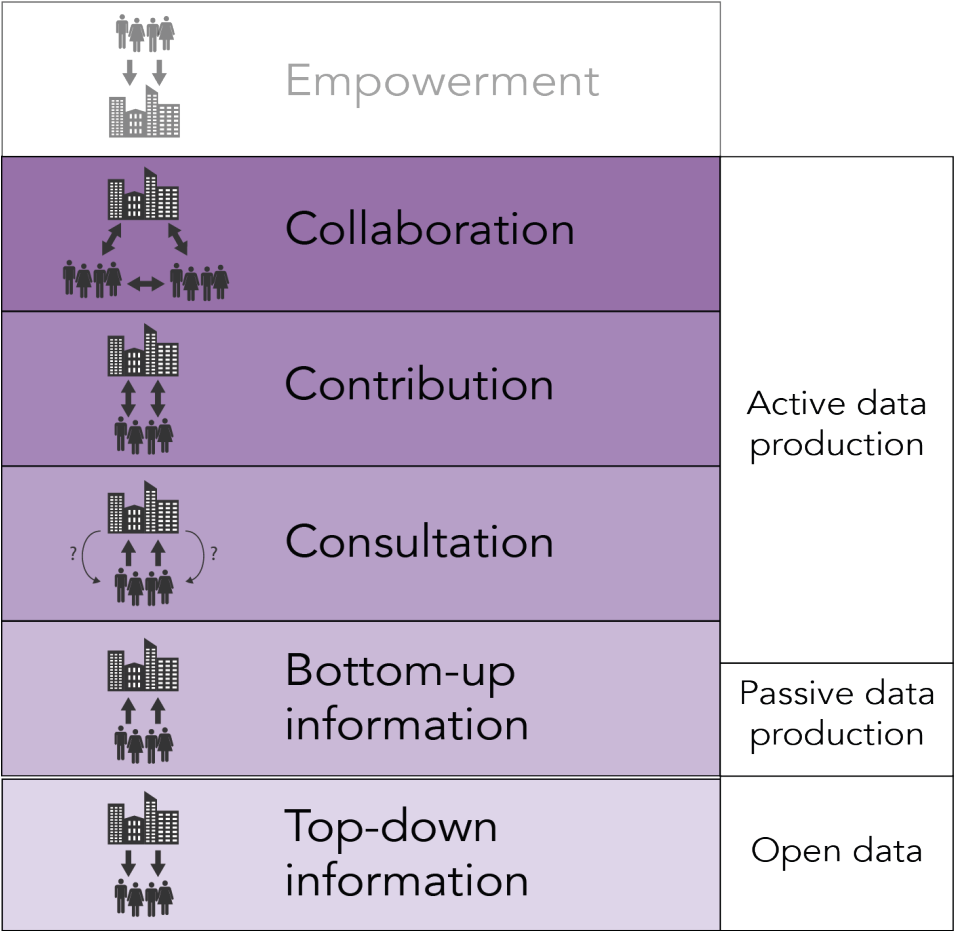
IAP2'S PUBLIC PARTICIPATION SPECTRUM



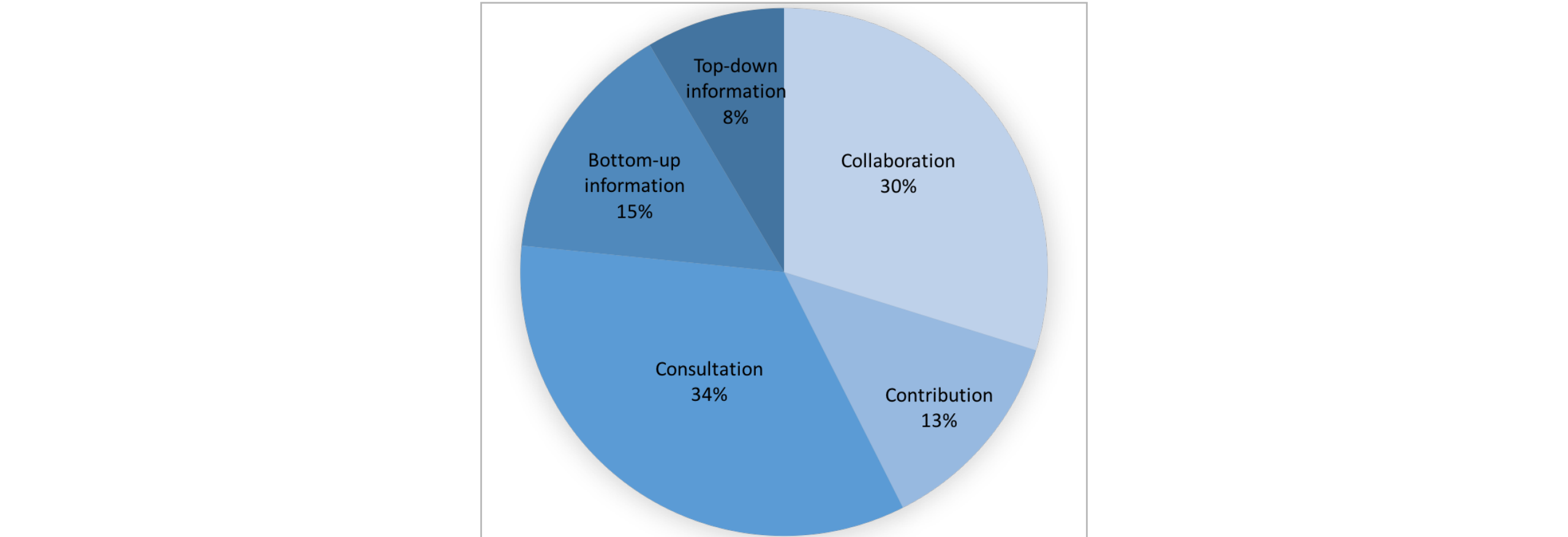
The IAP2 Federation has developed the Spectrum to help groups define the public's role in any public participation process. The IAP2 Spectrum is quickly becoming an international standard.



Practices classification



Distribution




Types of tools

Other interfaces

Sensors

Serious games

Immersive Urbanism



ames

[illegible]


Mainly app-based

- Social media
- Crowdsourcing
- Complaining apps



Mainly web-based

Opinion



GIS-based platforms

Collaborative platforms



What data for what stage?

Planning phases:

Diagnostic

- Needs
- Inventory
- Usage patterns
- Perception

Development

- Prediction
- Preference
- Ideas

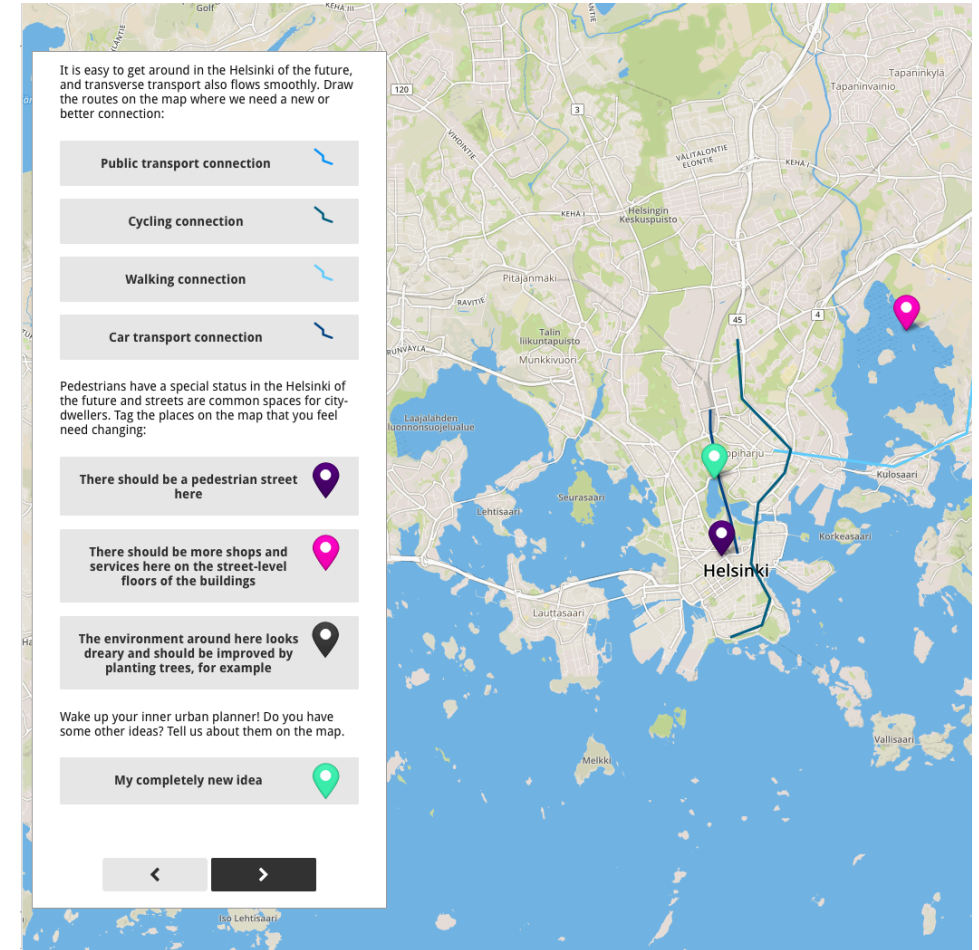
Decision making

- Evaluation

Types of data

Planning phase: Diagnostic

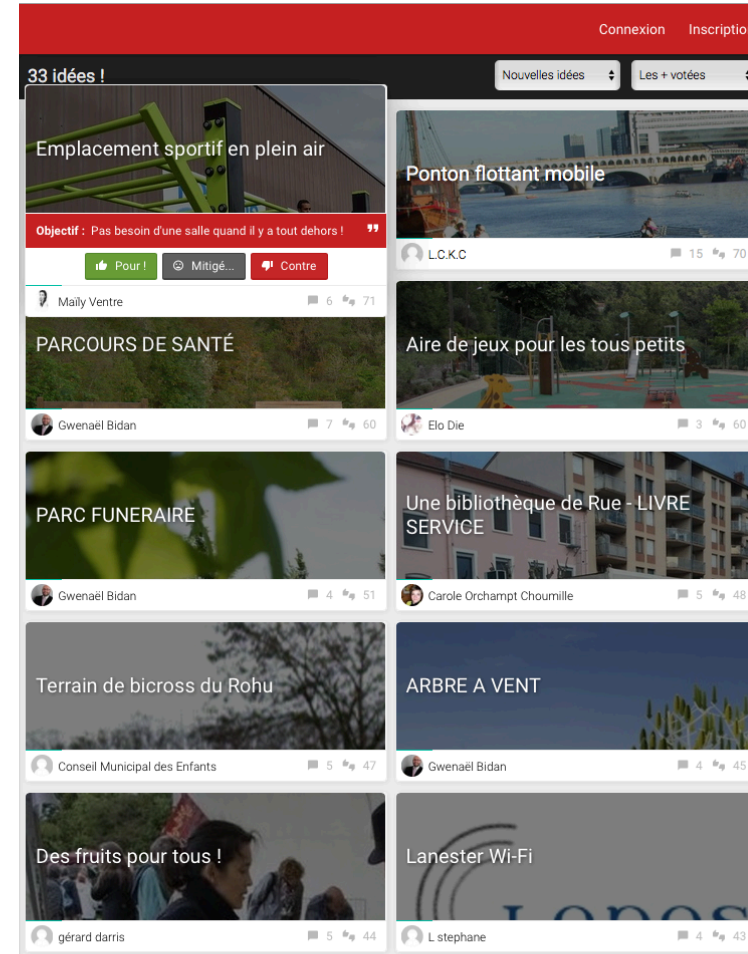
- Needs
- Inventory
- Usage patterns
- Perception



<https://maptionnaire.com/en/1060/>

Planning phase: Development

- Prediction
- Preference
- Ideas



<https://www.idcity.fr>

Planning phases: Decision making

- ## Put your money where your mouse is

Water Quality

 - Minor upgrade to stormwater system in a 100-acre existing neighborhood
 - Major upgrade to stormwater system in a 50-acre existing neighborhood

Floodplain Management

 - Buy out floodplain properties and convert to open space
 - Purchase about 200 acres of properties in the floodplain
 - Purchase about 800 acres of properties in the floodplain

Parking

 - Add more parking
 - Build a parking garage the size of the existing garage at 9th and Locust
 - Construct nearly 7,000 surface parking spaces

Public Transportation

 - Improve our public transportation system
 - Replace 2% of existing lane miles with a bus rapid transit system
 - Replace 10% of existing lane miles with a bus rapid transit system
 - Replace 0.5% of existing lane miles with a light rail transit system

Roads

 - Build more roads
 - Build 9 miles of two-lane road
 - Build 9 miles of 4-lane highway with 3 interchanges

Bicycle Paths and Facilities

 - Create new bicycle paths and facilities
 - Add bike lanes to 40% of existing lane miles

Trail Network

 - Expand trail network
 - Build nearly 300 miles of trail

Credits Send Feedback

SUBMIT

Show Instructions Again

Color shows how well your budget choices support your priorities

LOW HIGH

EPFL
ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

Lunch Talk - FCL

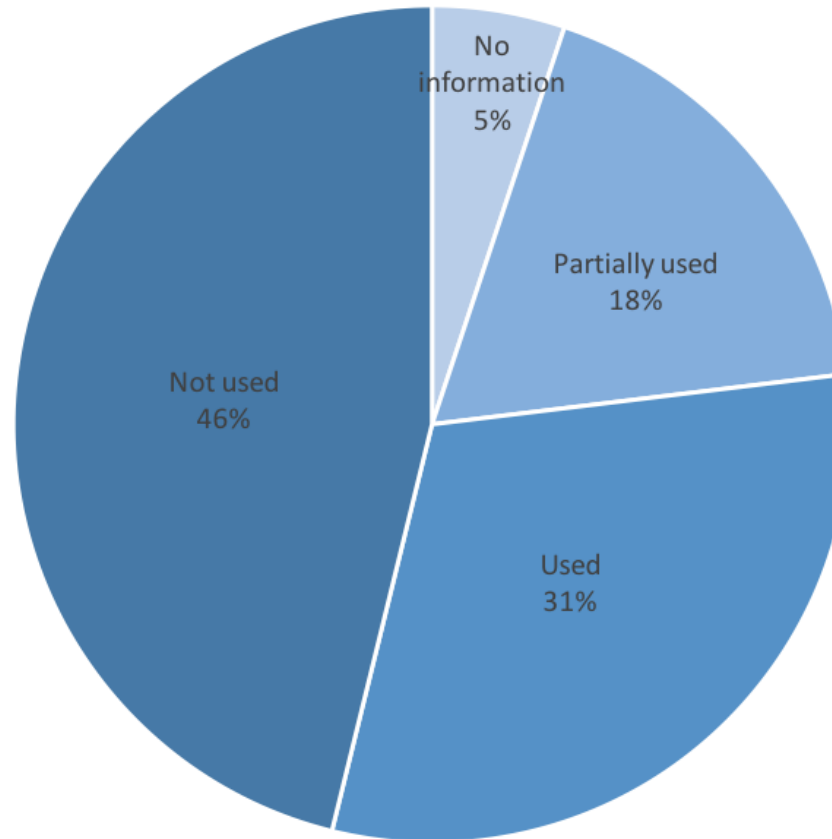
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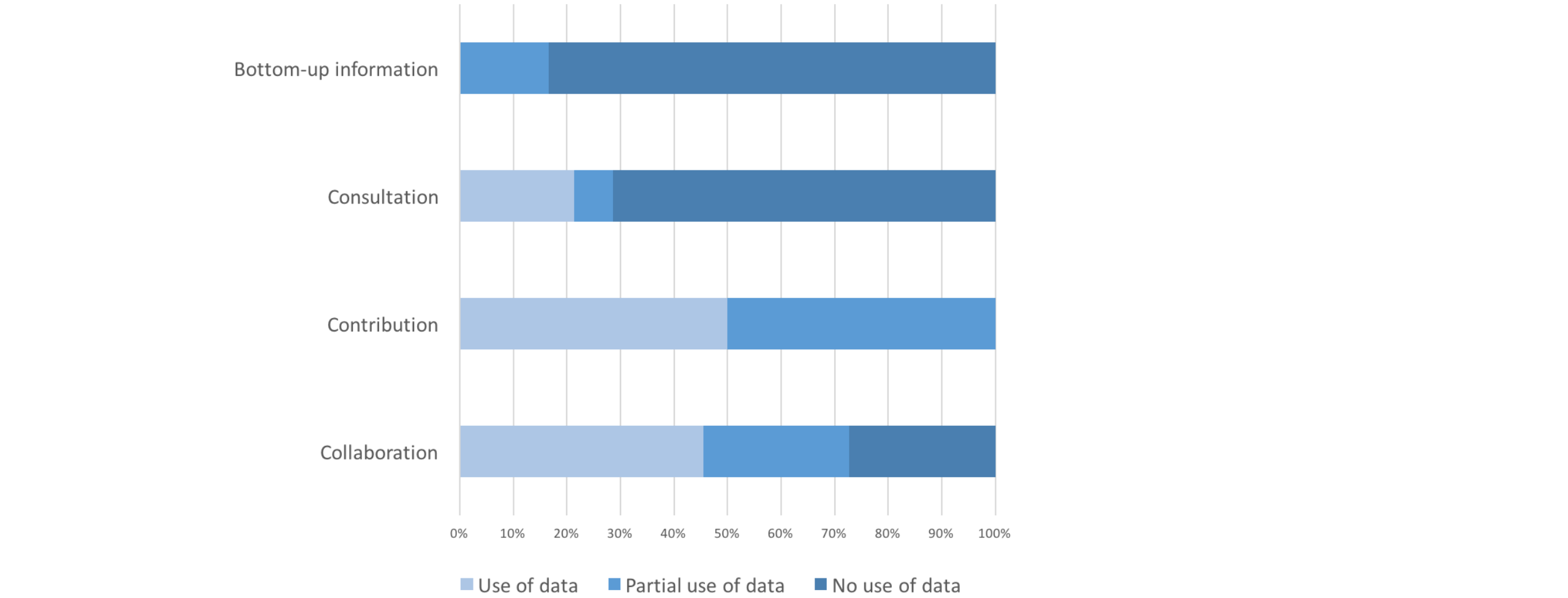
What impact on urban planning?

Use of data

- Used
- Partially used
- Not used
- No information



Use of data

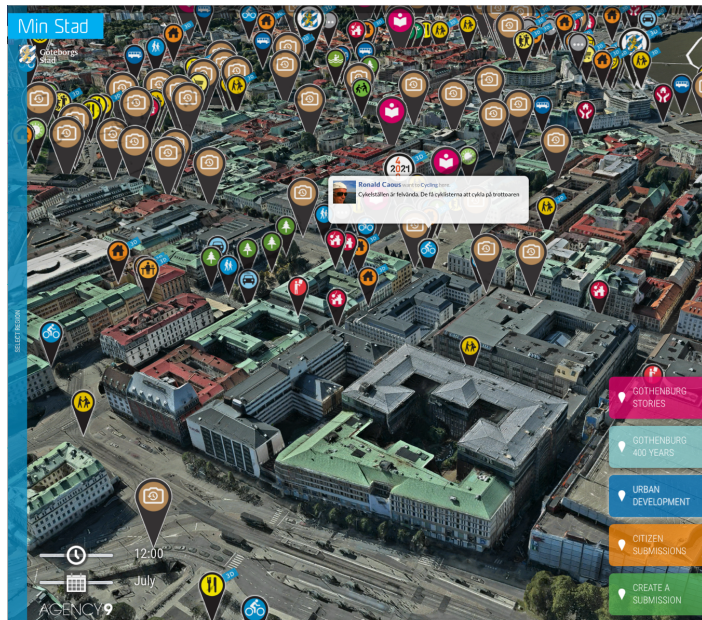


Reasons for non use of data

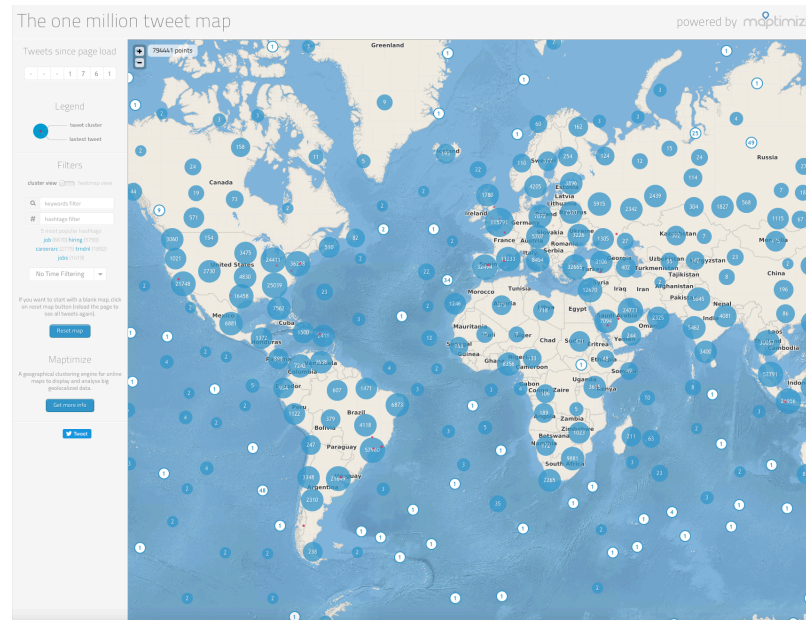
- Actor who launched the project;
- Absence of flexibility of the current urban planning policies and processes, often linked with legal framework and lack of political will;
- Inadequacy of the applied strategies to meet the needs of planners or that of citizens;
- Participatory process that arrives too late in the planning procedure;
- Fear of insufficient reliability and / or lack of results;
- Absence of consideration for this type of data;
- Fulfil legal participation needs;
- Advertising the city by digital innovations;
- Lack of competences and resources to process and analyze the data.

Amplification of possibilities

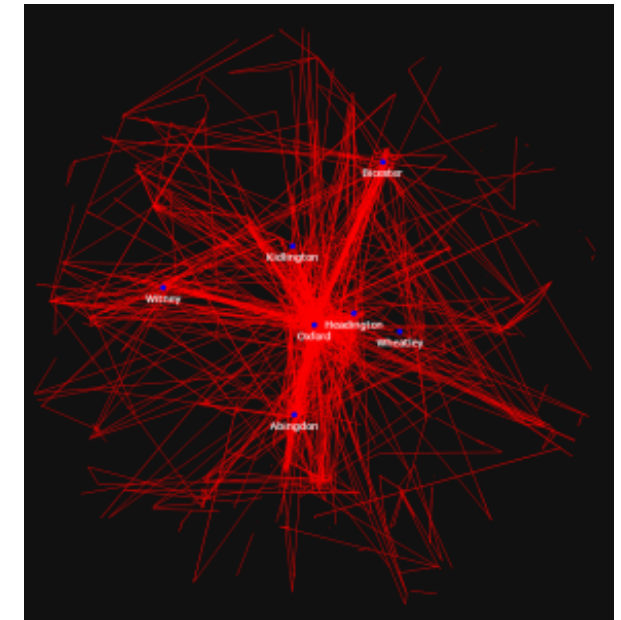
Digital tools are *amplifying* spread, collection and information production.
Concept borrowed from E. Eisenstein (Boullier, 2016).



<http://minstad.goteborg.se>



<http://onemilliontweetmap.com>

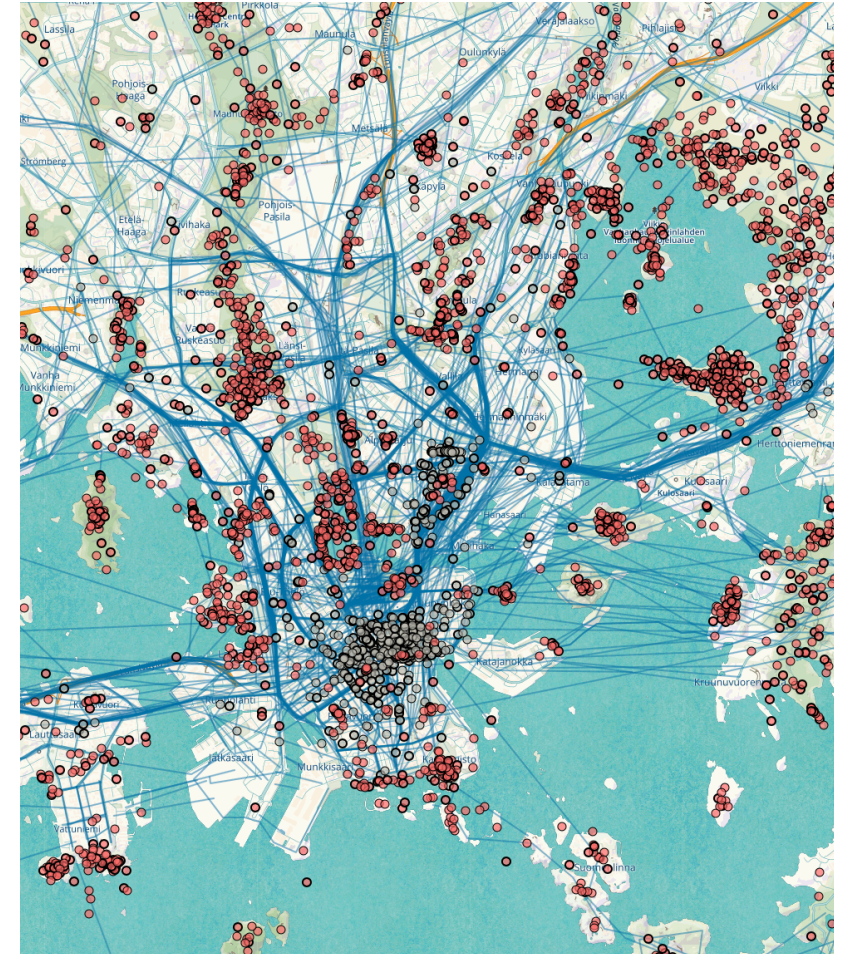


<http://smartcities.oii.ox.ac.uk/2016/01/12/mapping-human-mobility-with-social-media-data/>

Opportunities – expansion of data

- **New types of data:** perception, real time, opinions, idea, ...
- **Bigger amount of data**

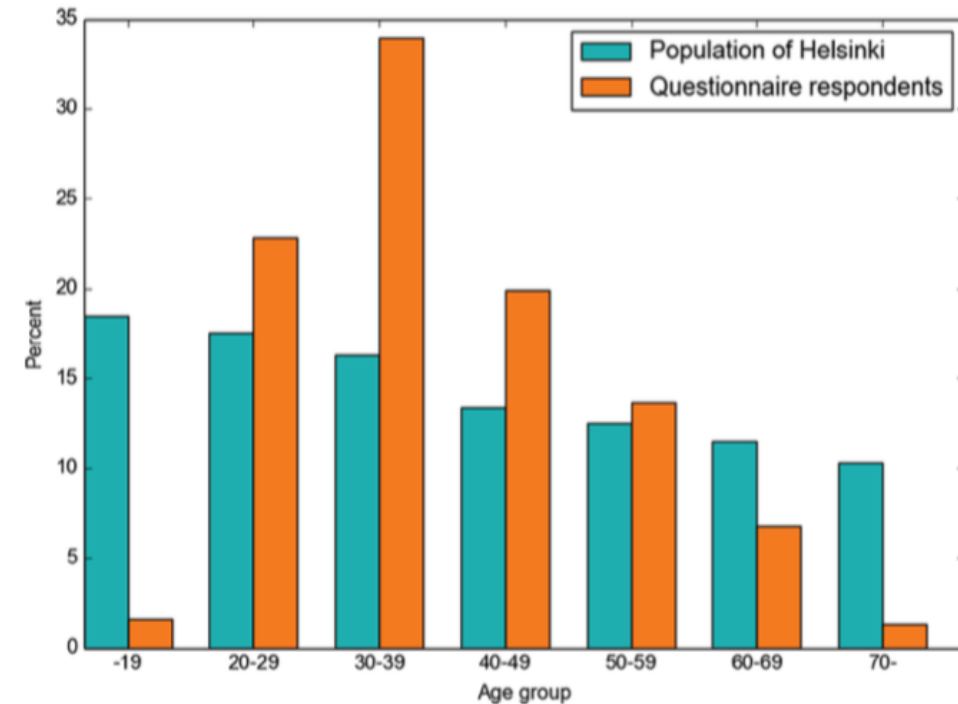
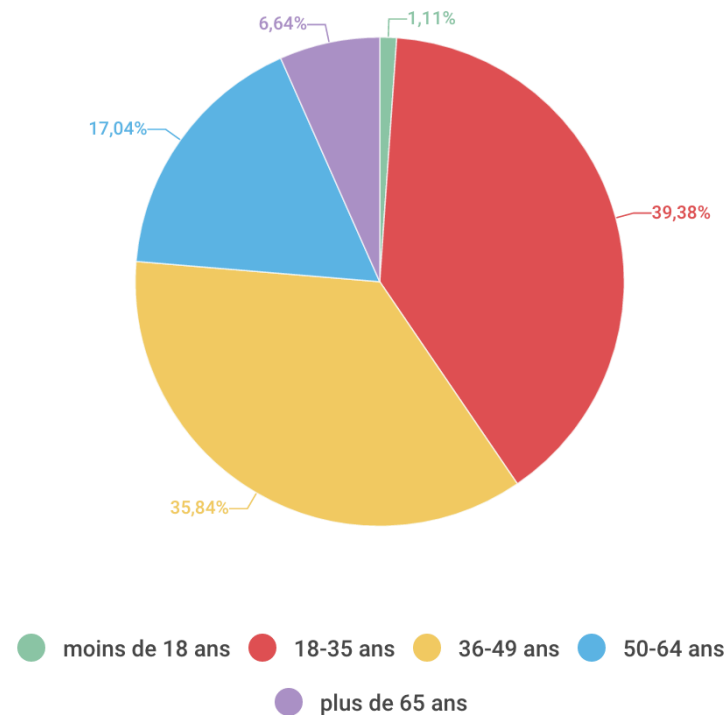
Between the dawn of civilization and 2003, we only created five exabytes of information; now we're creating that amount every two days,
Eric Schmidt, Executive Chairman of Alphabet, Inc.



<http://yleiskaava.maptionnaire.com/en/>

Opportunities – expansion of participation

- Wider participation: enables more people to participate, reach the “unheard voices”
- New socio-demographic profiles: young people, families, ...



<https://www.flui.city>

Kahila-Tani et al., 2016

Opportunities – new forms of participation

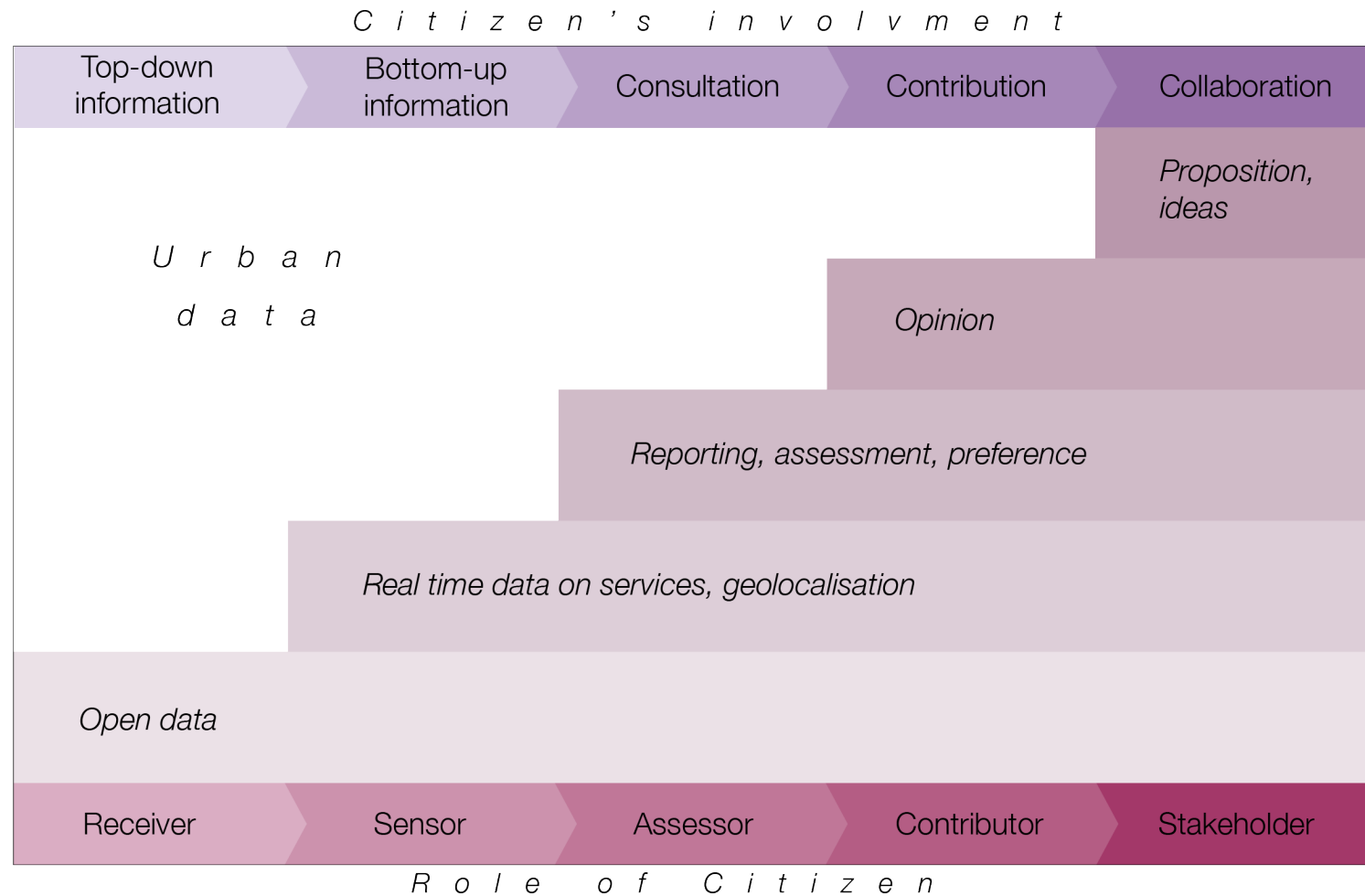
More immersive forms of participation:

- Augmented / virtual reality
- Role playing
- Design visualization



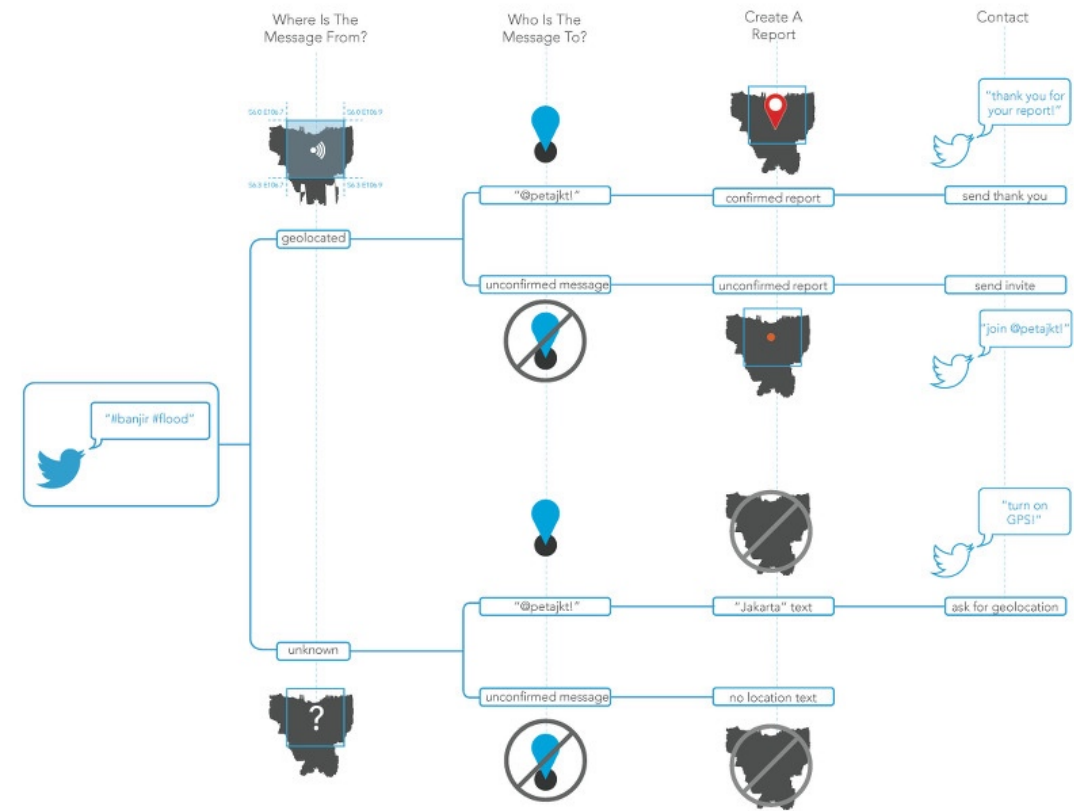
<http://unlimitedcities.org>

Opportunities – new role for the citizen



Limitations – contributions hierarchy

- Hierarchizing heterogeneous data
- Classification of contributions : expert vs people
- Translate contribution in meaningful knowledge



<https://petajakarta.org>


Limitations – line of thought

- Voting and feedback systems
- Objectified subjective data: objectify subjective data by codification and expert assessment (Boullier & Lohard, 2015)



Limitations – representativeness

- Online profiles
- No formal identification
- Affected and concerned people are more likely to participate
- No representative cross-section of the population

 **Who are you and where do you live?**

Age

25-29

Living situation

communal living

If you live outside of Helsinki, where do you live?

abroad

How likely is it that you will live in your current area five years from now?

difficult to say

My everyday mode of transport is:	
Most important	private car
Second most important	bicycle
Third most important	walking

<https://maptionnaire.com/en/1060/>

Limitations – line of thought

- Reducing people to their attributes (a like, an idea, ...)
- People as sensor

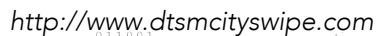


Limitations – privacy

- Protecting personal data
- Transparency

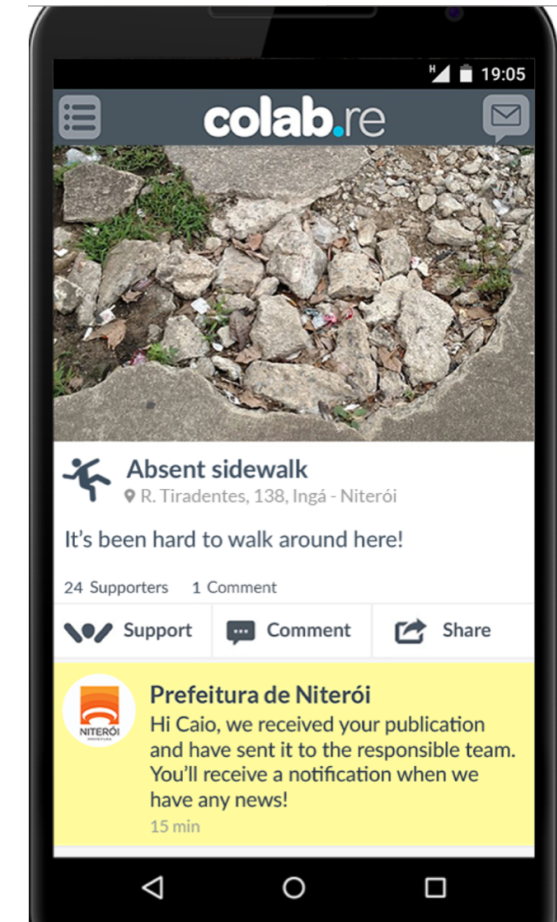


- Focus on data voluntarily shared
- Allow to participate anonymously
- Data anonymization techniques



Conclusion – role of the citizen

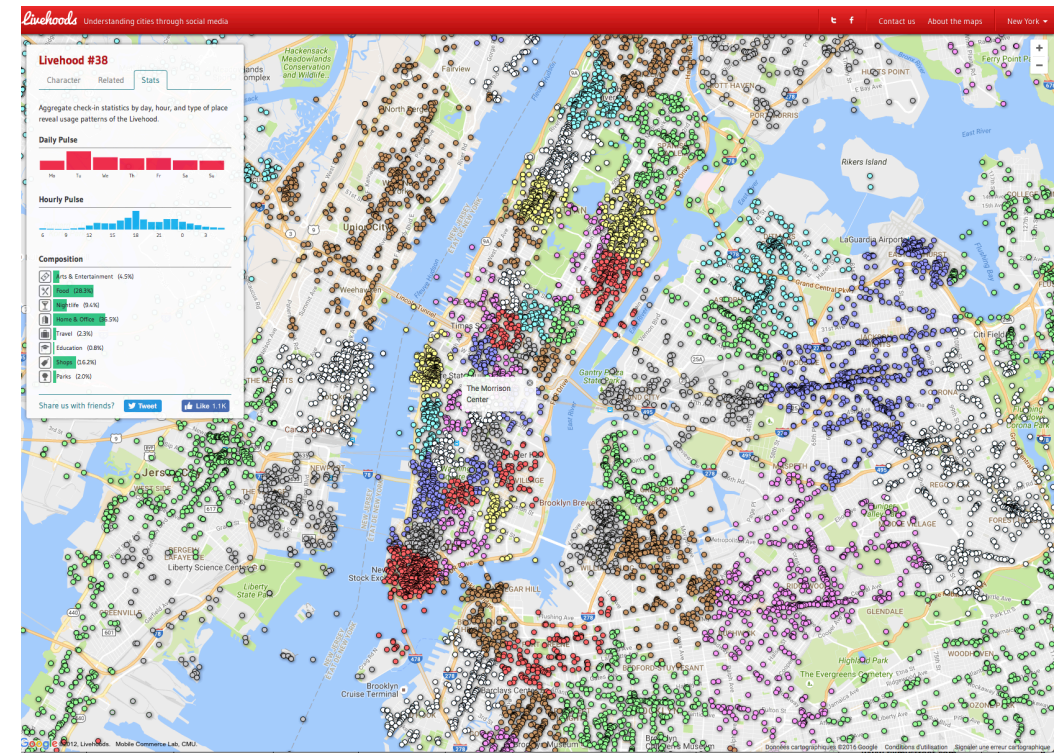
- New role for the citizen, new layer of local knowledge ;
- Digital footprints left, voluntarily or not, by citizen express their opinions and practices and therefore act as spokesperson ;
- Digital tools as a new jointure between administration, experts and citizens.



<https://www.colab.re>

Conclusion – opportunities and limits

- Multiplication of contributions increases complexity yet also reduces uncertainty by crossing multiple imprecise data about the studied phenomenon ;
- Lines of thought to overcome shortcomings, but still a need to find ways to classify and analyze data, and important to keep in mind the question of privacy.



<http://livehoods.org>

Conclusion

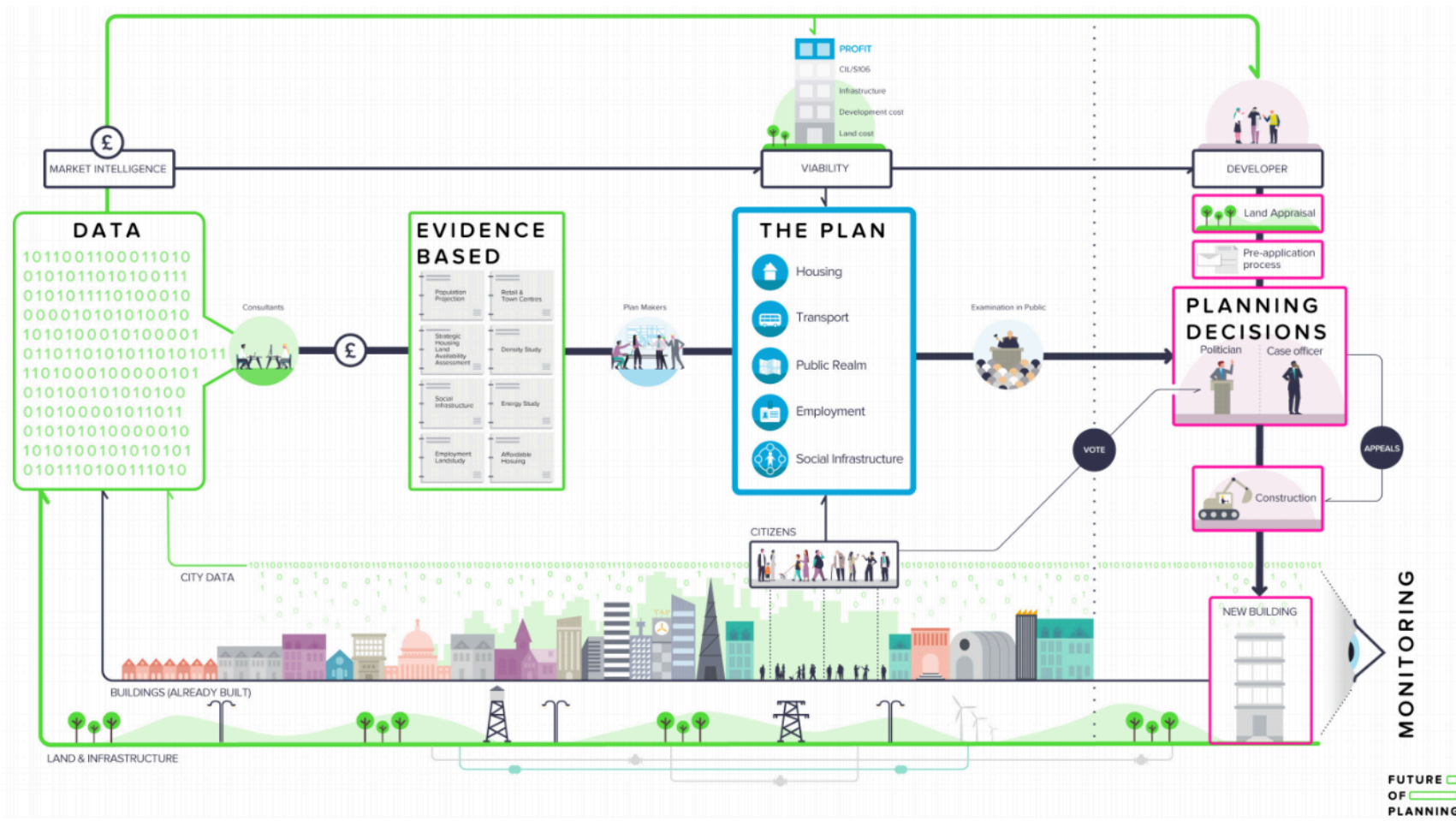
At first, it was a bit complicated, there was some reluctance, but once you prove it works, it's easier, people ask for it.

A. Renk, cofounder of Urban Fabric Organisation

Recommendations

- Digital tools as add-ons to current participatory processes : new layers of urban knowledge
- Change administrative structure and interactions to harness these new tools : Legal framework, political will
- Urban planner as pivot :
 - New skills : ensure to collect relevant data, translate contribution in meaningful insights, ...
- Design of the tool : motivate people to participate
- Digital tools shall not be considered as an experiment but be part of the process

Further research

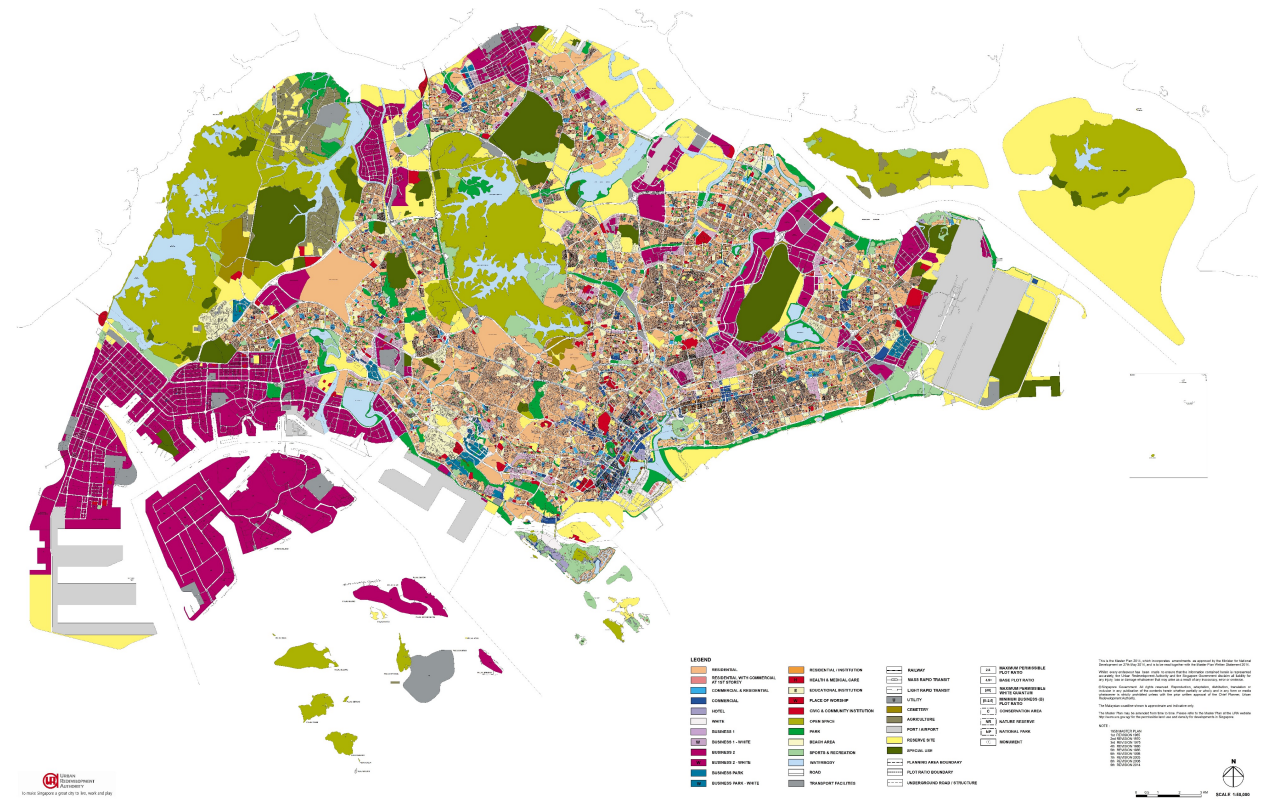
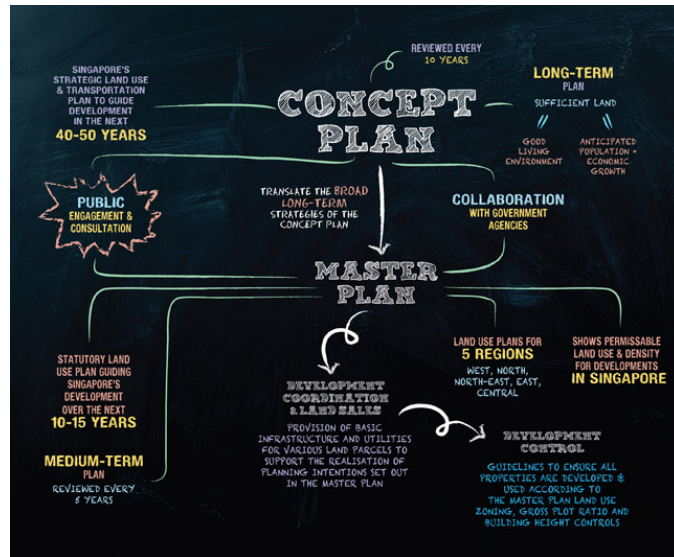


<http://futurecities.catapult.org.uk/2016/11/07/blog-future-planning-innovators-panel/>

Further research

Further research

Singapore as a case study



<http://cmgp.ura.gov.sg/more/Infographics/2012/MasterPlanConceptPlan.aspx>

<http://www.ura.gov.sg>

Lunch Talk - FCL

23.08.2017

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Thank you.
Any questions?



<http://www.ot-lab.ch/?p=6657>

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